

SUPPORT FOR THE AMENDMENT

Support for Claim 25 is found in Claims 1, 5, 8 and 21 as originally presented. Support for Claim 26 is found in Claims 2, 6 and 8 as originally presented. Support for Claims 27 and 28 is found in Claims 3 and 4 as originally presented. No new matter would be added to this application by entry of this amendment.

Upon entry of this amendment, Claims 3-4, 13-14, 17-18 and 25-28 will now be active in this application.

REQUEST FOR RECONSIDERATION

The present invention is directed to a method of producing a coated glass with a heat reflecting colored film.

Applicants wish to thank Examiner Blackwell-Rudasill for the helpful and courteous discussion held with their U.S. representative on July 6, 2004. At that time, Applicants' U.S. representative argued that the cited art failed to disclose or suggest an improved appearance resulting from a sputtering coating method as compared with a spray deposition method. The following is intended to expand upon the discussion with the Examiner.

Automotive windshields are typically provided with heat reflecting colored films which can reduce solar energy transmittance. Such films are typically comprised of cobalt oxide formed by a spraying method. While sputtering of films has been reported, however, with magnetron sputtering, typically suitable for high speed, alloy targets of cobalt and iron may not be practically used since such materials are ferromagnetic. In addition, ceramic pastes and silver pastes are often applied followed by drying and baking to provide aesthetic and functional prints. Reactions of ceramic colored paste with cobalt oxide containing films sometimes produces unfavorable whitish coloration. Use of a silver printing such as formation of a window defogger on a cobalt oxide containing film sometimes has a problem

of coloration. Accordingly, methods of forming glass coated with a heat reflecting colored film as well as a ceramic color paste and/or a silver paste are sought.

The present invention addresses the problem of providing a method of producing a glass coated with a heat reflecting colored film comprising steps of forming first and second layers containing iron and cobalt followed by a step of coating with a ceramic and/or silver paste followed by heat treatment. Applicants have discovered that such a method provides for good coloration of the ceramic colored paste and silver paste in an efficient manner allowing for sputtering, independent on the composition of the sputtering target. In addition, during the heat treatment, the laminates of the first and second layers are converted into the desired heat reflecting colored film utilizing phase mixing and the ceramic color and/or silver paste is baked. Such a process is nowhere disclosed or suggested in the cited prior art of record.

The rejection of Claims 1-2, 9-10, 13-14 and 17-18 under 35 U.S.C. § 102(b) and/or 35 U.S.C. § 103(a) over U.S. 86,291,074, Sakai et al. is respectfully traversed.

Sakai et al. fails to disclose or suggest a process in which a ceramic colored paste and/or a silver paste is applied followed by heat treatment.

As noted by the Examiner, Sakai et al. describes a heat reflective glass having a film comprising cobalt, chromium and iron of a defined percentage on a side in contact with the glass plate and a film having a specified composition on an outermost side (col. 1, lines 66- col. 2, line 23). Nowhere in the reference is it disclosed or suggested a method in which a glass coated with a heat reflecting colored film is produced by laminating first and second layers by sputtering, followed by steps of coating with a ceramic color paste or a silver paste and a heat treatment.

In contrast, the present invention is directed to a method of producing a glass coated with a heat reflecting colored film comprising steps of forming first and second layers by

sputtering, a step of coating with a ceramic color paste and/or a silver paste followed by a heat treatment step. Applicants have discovered that such a process makes possible DC magnetron sputtering without and restriction on the sputtering target. As a result of the heat treatment, phase mixing occurs between the first and second layers to obtain a heat reflective colored film. Moreover, as opposed to a spraying method for applying the heat resistant reflecting film, in which heat treatment steps are required before application of the ceramic color or silver printing, the present invention makes it possible to omit separate heat treatment prior to heat treatment of the ceramic color or silver printing. Such a process is therefore more energy efficient in terms of heating.

Moreover, by using a sputting method, it makes is possible to avoid unfavorable coloration of the ceramic color paste and/or silver paste formed on the heat reflecting colored film. Applicants note, the claims have been amended to recite a process of producing a coated glass with a heat reflecting colored film comprising sequential steps of laminating first and second layers, a step of coating with a colored paste or a silver paste followed by heat treatment. As the prior art fails to disclose or suggest such a process including the coating with a colored paste and/or a silver paste followed by heat treatment, the claimed invention is clearly neither anticipated or made obvious by these references and accordingly withdrawal of the rejections under 35 U.S.C. § 102(b) and 35 U.S.C. § 103(a) as respectfully requested.

The basic consistencies of the primary reference are not cured by the secondary reference of Grubb et al. (U.S. C. 4,022,947).

This references has merely been cited to describe a metal oxide protective film but fails to disclose or suggest the claim step further comprising the coating with a ceramic color paste and/or solar paste followed by heat treatment.

As the prior art fails to disclose or suggest the claimed invention, withdrawal of the rejections under 35 U.S.C. § 103(a) is respectfully requested.

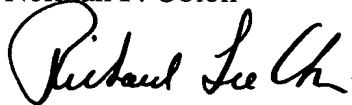
The rejection of Claims 11 and 12 under the judicially created doctrine of obviousness-type double patenting over Claims 1-4 of U.S. Patent 6,706,406 is believed to be moot.

Claims 11 and 12 have been canceled.

Applicants submit this application is now in condition for allowance and early notification of such is earnestly solicited.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.
Norman F. Oblon



Richard L. Chinn, Ph.D.
Attorney of Record
Registration No. 34,305

Customer Number

22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 06/04)

NFO/RLC/law